

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-015031**Date Inspected:** 22-Jun-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice W1/W2
- B). Field Splice W2/W3
- C). Field Splice W3/W4
- D). Field Splice W4/W5

A). Field Splice W1/W2

The QAI observed the Ultrasonic Testing (UT) of the R3 weld repairs of the deck plate field splice identified as WN: 1W-2W-D, longitudinal stiffeners identified as S2-R3, S5-R3 and S6-R3. The testing was performed by the QC technician Tom Pasqualone utilizing a G.E./Krautkramer USM 35X and the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician performed the required shear wave technique during the testing for weld soundness which was performed utilizing a .63 x .75 rectangular transducer. The ultrasonic testing was completed during this shift and no rejectable flaws were noted by the QC technician. See QA Observation and Verification Summary regarding QAI UT verification.

The QAI also observed the Complete Joint Penetration (CJP) identified as WN: 1W-2W-F. The welding performed by the welder, James Zhen ID-6001, utilizing the Flux Cored Arc Welding (FCAW-G) process and was performed as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-3110-3 Rev. 0. The

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

WPS was also used by the QC inspector, Tom Pasqualone, as a reference to monitor the welding and verify the DCEP welding parameters and were noted as follows; 210 amps, 22.5 volts and a travel speed measured at 175mm/minute. The QC inspector also verified the the preheat and interpass temperatures which appeared to comply with the contract documents.

B). Field Splice W2/W3

The QAI also observed the Ultrasonic Testing (UT) of the transverse CJP weld on the deck plate field splice identified as WN: 2E-3E-C. The testing was performed by the QC technician Jesse Cayabyab utilizing a G.E. /Krautkramer USM 35X. Mr. also utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 as a reference during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .63 x .75 rectangular transducer to perform the shear wave technique during the testing for weld soundness. Mr. Cayabyab completed the initial ultrasonic testing from the "B" face during this shift and six (6) rejectable flaws were noted.

C). Field Splice W3/W4

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 3W-4W-E. The welding was performed by the welder /operator Rory Hogan ID-3186 utilizing the WPS ABF-WPS-D15-3042A Rev. 1. The WPS was also used by the QC inspector James Cunningham as a reference when monitoring the welding and verifying the welding parameters which were observed as follows: 244 amps, 23.5 volts and a travel speed measured as 189mm. The QC inspector also verified the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead position (4G) with the work at approximate incline of 22 degrees. The CJP welding of the "B" face of the joint was completed during this shift.

The QAI also observed the CJP welding on the weld joint identified as WN: 3W-4W-B. The CJP welding was performed by Xiao Jian Wan ID-9677 utilizing the FCAW-G process as per the WPS identified ABF-WPS-D15-3040B-3. The WPS was also used by the QC inspector Bonifacio Daquinag, Jr. to monitor the in process welding and verify the DCEP welding parameters. The welding parameters were verified by the QC inspector and were noted as follows; 230 amps, 23.8 volts and a travel speed measured at 210mm/minute. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding parameters and the surface temperatures appeared to comply with the contract documents.

The QAI also generated an Incident Report identified as a TL-15 in regards to the planar misalignment of the weld joint identified as WN: 3W-4W-B. The misalignment appeared to be located at the established Y dimensions as follows; Y=775mm to 820mm and Y=1265mm to 1375mm. The planar misalignment was measured and recorded at 3mm by the QC inspector Bonifacio Daquinag, Jr. and verified by the QAI. The plate thickness of the edge plate appeared to be 25mm. See Summary of Conversations for additional information.

D). Field Splice W4/W5

The QAI also observed continued the Ultrasonic Testing (UT) of the repairs on the deck plate field splice

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

identified as WN: 4W-5W-A, Segment A4. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X and the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician performed the required shear wave technique during the testing for weld soundness which was performed utilizing a .63 x .75, 2.25 megahertz rectangular transducer. The QAI observed at the conclusion of the examination the QC technician noted one (1) repair as a reject.

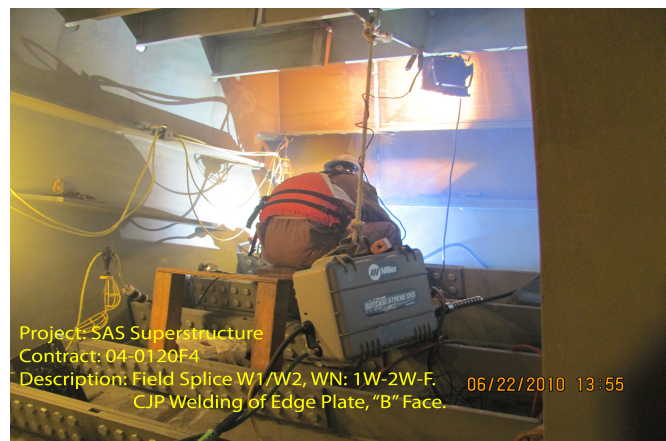
There was no repair welding performed at this field splice during this shift.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector's and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the FCAW-G processes appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The QAI performed a Ultrasonic Test (UT) on the R3 weld repairs of the longitudinal stiffener field splice identified as WN: 1W-2W-D, S2-R3, S5-R3 and S6-R3. The QAI tested 100% of the welds to verify the weld and testing by QC meet the requirements of the contract documents. The test was performed as per the contract documents and a UT report, TL-6027 was generated on this date.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

In conversation with the QC inspector Bonifacio Daquinag, Jr., regarding the planar misalignment issue was discussed in regards to the project. The QAI was informed by the QC inspector that the fit-up crew was unable to align the weld joint to the acceptable dimensions, as per the contract documents. The QC inspector will

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

incorporate this issue with his daily report to be reviewed by his superiors and during this time the fit-up/alignment acceptance is pending ABF submittal for approval.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
